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EXAMINER	
ORTIZ CRIADO, JORGE L	

ART UNIT	PAPER NUMBER
2627	

NOTIFICATION DATE	DELIVERY MODE
01/29/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 09/903,752	Applicant(s) KAWANO, NORIYUKI	
	Examiner Jorge L. Ortiz-Criado	Art Unit 2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 November 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7, 22-31, 42, 49 and 51-56 is/are pending in the application.
- 4a) Of the above claim(s) 22-31 and 51-54 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 42, 49, 55 and 56 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Newly submitted amended claims 22-31 and 51-54 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons:

Claims 22-31 and 51-54 are drawn to patentably distinct non-elected Species (c), of Figures 18-23. Election of Species (a), Figures 1-10 and 13A-13B, was made in the reply filed 12/24/2003.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 22-31 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-7 and 49 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one

skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 1, recites the limitation "including plural printed circuit boards each containing at least one coil of a plurality of coils".

The examiner cannot ascertain where in the specification, as originally filed, support for this limitation is found. Hence, the limitation is considered new matter.

Claims 7 and 49 fall together accordingly.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 1-7 and 49 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. See MPEP § 2173.05(c). Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of

the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present application, claim 1 recites the broad recitation "at least one coil of a plurality of coils", and the claim also recites "said plurality of coils" which is the narrower statement of the range/limitation.

Claims 7 and 49 fall together accordingly.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6, 42, 49 and 55-56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Izuka U.S. Patent No. 5,666,235 in view of Murakami et al. Japanese Publication 06-251405 and further in view of Ikegame Japanese Publication. No. 10-116431.

Regarding claim 1, Izuka discloses an objective lens drive apparatus configured to be used in an optical pickup (See Abstract), comprising:

a magnetic circuit comprising a first and second magnets (47, 48) separated from one another by a single gap, the first and second magnets providing a magnetic field relative to said single gap (See Figs. 9,10, 30-35); and

a coil unit comprising a single laminate structure including a plurality of printed circuit boards (28; Figs. 28-31) each containing at least one coil of a plurality of coils, the laminate structure being disposed for operative interaction with the magnetic field of the single gap, said plurality of coils including at least one focus coil (31) configured to provide focusing movement of the single laminate structure due current in the at least one focus coil interacting with the magnetic field of said gap, at least one tracking coil (34) configured to provide tracking movement of the single laminate structure different from the focusing movement due to current in the at least one tracking coil interacting with the magnetic field of said gap (See Figures 11-12), and

an objective lens connected to the single laminate structure such that movement of the laminate structure results in a corresponding movement of the objective lens, the objective lens is disposed outside of the single gap in which the laminate structure is disposed (see col. 11, line 41 to col. 12, line 43).

Izuka teaches a plurality of coils provided together on one of the plural circuit boards. But, Izuka fails to disclose plural tilt coils provided together.

However this feature is well known in the art as evidenced by Murakami et al., which discloses an objective lens drive apparatus configured to be used in an optical pickup having a magnetic circuit and a coil unit comprising plural tilt coils (5a, 5b) provided together, configured to provide inclination adjusting tilting movement of the laminate structure different from the focusing movement and the tracking movement due to current in the plural tilt coils interacting with the magnetic field.

In the combination above, the tilt coils would be provided in the printed boards as well, because Izuka teaches the provision of the coils using printed circuit boards.

Furthermore, Ikegame teaches a configuration of tilt coils provided in a printed circuit board.

Ikegame discloses an objective lens drive apparatus configured to be used in an optical pickup (See Abstract), comprising: a magnetic circuit comprising a first and second magnets separated from one another by single gap; (See Detailed description [0033]; Figs. 11, 12, ref# 8,9); and a coil unit comprising a laminate structure (See detailed description [0028]; Figs. 12 ref# 23,24) including a focus coil (See detailed description [0028]; ref # 3), a tracking coil (See detailed description [0028]; Figs. 12, ref # 4) and

tilt coils configured to provide inclination adjusting tilting movement of the laminate structure different from the focusing movement and the tracking movement due to current in the at least one tilt coil interacting with the magnetic field of said single gap, (See detailed description [0028]; Figs. 12, ref # 5,6), the laminate structure is disposed within the gap (See detailed description [0028]; Figs. 11,12), an objective lens connected to the laminate structure such that movement of the laminate structure results in a corresponding movement of the objective lens (See [0031]-[0038]; Figs. 11-13, 16).

It would have been obvious to one of an ordinary skill in the art at the time of the invention to include tilt coils in the laminate structure of the plurality of boards of Izuka, because by doing so, the movement of the laminate structure results in a corresponding movement in the objective lens tilt direction, compensating for disturbance of tilt which results in obtaining a stable servo operation as taught by Murakami et al. and Ikegame.

Regarding claims 2, the combination of Izuka, Murakami et al. and Ikegame show wherein the at least one tracking coil the plural tilt coils are separately disposed on different ones of the plural printed board (see Izuka) (See Figs. 28-35).

Regarding claims 3, the combination of Izuka, Murakami et al. and Ikegame show that: (see Izuka) the at least one focus coil and the at least one tracking coil are separately disposed on different ones of the plural printed circuit boards (See col. 21, lines 22-44; Figs. 28-30); or (see Ikegame) the coil unit comprises a printed circuit board, and the focus coil and the tracking coil are disposed on the printed circuit board (See Detailed description [0028]; Figs. 11, 12, ref# 23,24).

Regarding claim 4, the combination of Izuka, Murakami et al. and Ikegame outlined above show that plural printed circuit boards include a plurality of alternating first and second printed circuit boards, and the at least one focus coil and the at least one tracking coil are disposed on the plurality of first printed circuit boards and the plural tilt coils are disposed on the plurality of second printed circuit boards (see Izuka) Figs. 28-30).

Regarding claim 5, the combination of Izuka, Murakami et al. and Ikegame show that the coil unit single laminate structure comprises a plurality of alternating first and second printed boards, and the at least one focus coil pattern and the at least plural tilt coils are mounted on the plurality of first printed circuit boards and the at least one

tracking coil is mounted on the second printed boards (See Detailed description [0028]; Figs. 11, 12, ref# 23,24) or (see Izuka) boards 31 and boards 34.

Regarding claim 6, the combination of Izuka, Murakami et al. and Ikegame show that (see Izuka) the coil unit comprises only one focus coil (131), and even number of the tracking coils (134) and

(see Murakami) two tilt coils (5a,5b) and wherein the magnet is magnetized in two polarities in a focus adjustment direction.

Regarding claim 42, claim 42 have limitations similar to those treated in the above rejection(s) with claims 1, and are met by the references as discussed above. Claim 42 however also recites the following limitations lens holder and met by the references above (see holder 25 Fig. 9 of Izuka).

Regarding claims 49 and 55, the combination of Izuka, Murakami et al. and Ikegame shows that the at least one focus, tilt and tracking coils are disposed on different ones of the plurality of circuit boards, the plurality of circuits boards forming the "lamine" structure with one another, as outlined in the above rejections.

Regarding claim 56, the combination of Izuka and Ikegame shows that only one laminate structure including the focus, tracking and tilt coils is disposed in the gap, as outlined in the above rejections. Furthermore Izuka teaches and coupled with the lens holder (25) with two pairs of conductive elastic members (35s) being configured to have

one conductive elastic member of each pair connected to one side of the one laminate structure (28) and the second conductive elastic member of each pair connected to a side of the one laminate structure opposite to the one side (see Figures, 9,10, 14), with each pair of elastic conductive members configured to provide elastic support for the one laminate structure and coupled the lens holder (25) while supplying current exclusively to only one of the focus, tracking coils.

And, in the combination outlined above the third pair would inherently provide the necessary drive current to the tilt coils.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Izuka U.S. Patent No. 5,666,235 in combination with Murakami et al. Japanese Publication 06-251405 and Ikegame Japanese Publication. No. 10-116431 and further in view of Kubo Japanese Publication. No. 07-105552.

As outlined in the above combination of the combination of Izuka, Murakami et al. and Ikegame, Murakami shows two of the tilt coils (5a,5b), but fails to show that the coil unit comprises an even number of focus coils, only one tracking coil, wherein the magnet is magnetized in two polarities in a tracking adjustment direction.

Kubo discloses an objective lens drive apparatus configured to be used in an optical pickup, comprising: a magnetic circuit comprising, a coil unit comprising a "laminate" structure including a focus coil, a tracking coil, the "laminate, and an objective lens connected to the laminate structure such that movement of the laminate structure results in a corresponding movement of the objective lens, the objective lens is disposed outside of a gap in which the laminate structure is disposed and the coil unit

comprises an even number of focus coils (19/23), only one tracking coil (20), and wherein the magnets are magnetized in two polarities in a tracking direction (Figs. 1-8).

It would have been obvious to one of an ordinary skill in the art at the time of the invention to include a coil unit comprising an even number of focus coils, only one tracking coil, and wherein the magnets are magnetized in two polarities in a tracking direction as taught by Kubo in order to obtain an optimum desired servo actuation that provides such configuration of coils and magnet for making driving of the pickup efficient.

Furthermore, because these two limitations are believed to be art-recognized equivalent structures at the time of the invention, one of ordinary skill in the art at the time of the invention would have found this rearrangement of parts obvious, as taught by Kubo.

Response to Arguments

Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jorge L. Ortiz-Criado whose telephone number is (571) 272-7624. The examiner can normally be reached on Mon.-Fri 10:00 am- 6:30 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Korzuch can be reached on (571) 272-7589. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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